DOCUMENT RESUME

ED 260 092 TM 850 407

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TITLE The Children's Fear Expression and Research Survey: (Children's F.E.A.R.S.).
PUB DATE [82]
NOTE 18p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Affective Measures; *Age Differences; Analysis of Variance; Child Development; *Childhood Attitudes; Elementary Education; Elementary School Students; Emotional Development; Factor Structure; *Fear; Rating Scales; Self Evaluation (Individuals); *Test Construction; *Test Reliability; Test Validity
IDENTIFIERS *Childrens Fear Expression and Research Survey; Self Report Measures

ABSTRACT

The Children's Fear Expression and Research Survey (Children's F.E.A.R.S.) is a new self-report measure of fear suitable for children in grades two through six. The survey is designed to meet current psychometric standards and to be useful in both clinical and research settings. Originally 200 test items were drawn from existing measures; from the literature on childrens' fears; and from psychologists, graduate students, teachers, and children. A five-point Likert-type scale was used. Round One of the test was administered, in groups, to 258 children, aged 7 to 12. Principal component analyses with varimax rotation resulted in 59 items yielding seven components which explained 53 percent of the total variance. These 59 items were administered to 353 children in Round Two. The final result was a 24-item measure containing four components: death and destruction, social acceptance, social conflict, and imagination. The alpha internal consistency coefficients for the four scales ranged from .71 to .92. Analysis of variance results on each of the four scales were significant. The age difference analysis indicated that death and destruction fears decreased with age, while social acceptance fears increased. (GDC)

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The Children's Fear Expression and Research Survey:

(Children's F.E.A.R.S.)

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TM 850 407

The Children's Fear Expression and Research Survey:

(Children's F.E.A.R.S.)

Abstract

This study presents the initial development of a new self-report measure of fear, the Children's Fear Expression and Research Survey. The Children's F.E.A.R.S. represents an encouraging improvement over past measures: four clearly identifiable components emerged following the two administrations; the factor structure and degree of factorial invariance were satisfactory; the percentage of total variance for which the 24-item measure accounted was 59% on Round One and 58% on Round Two; and the internal consistency (Alpha) coefficients for the component scales were all within acceptable limits. Evidence also is presented to suggest that children's fears change with age on at least two of the four component scales.

Prior attempts to determine the number and the intensity of fears in children and adults have included self-report surveys (Braun & Reynolds, 1969; Croake, 1969; Geer, 1965; Lang & Lazovik, 1963; Miller, Barrett, Hampe, & Noble, 1972; Scherer & Nakamura, 1968; Wolpe & Lang, 1964), structured interviews (Angelino, Dollins, & Mech, 1956; Bauer, 1976; Jersild & Holmes, 1933; Lapouse & Monk, 1959), parent report (Miller, Barrett, Hampe, & Noble, 1972), and direct observations in natural and experimental settings (Fazio, 1969; Geer, 1965; Jersild & Holmes, 1933).

The bulk of the other inventories have been attempts to establish normative data or to test hypotheses. In the latter category, one of the most frequently posed research questions has involved whether or not children's fears change with age. The results of prior research which addressed itself to this question were mixed. Some (Bamber, 1974; Bauer, 1976; Croake, 1969; Jersild & Holmes, 1933; Miller, Barrett, Hampe, & Noble, 1972; Scherer & Nakamura, 1968) answered in the affirmative, and yet their results were so varied that one is hard pressed to make general statements with certainty regarding these developmental findings.

Other studies which have addressed the developmental question have been negative in their findings (Bondy, Sheslow, & Garcia, 1981), equivocal (Croake & Knox, 1973), or mixed (Russell, 1967; Spiegler and Liebert, 1970).

The present study sought to construct a self-report fear survey schedule for children which would meet current psychometric standards and which would prove useful in both clinical

and research settings.

Four aspects of scale development formed the core of this initial effort: (1) item selection - the items had to represent as comprehensive a search for representative fear stimuli as possible; (2) reliability - the factor structure and the degree of factorial invariance across two administrations of the measure were used as an initial assessment of reliability; (3) validity - the proportion of total variance accounted for was used as a necessary but not sufficient step in ascertaining construct validity; and (4) internal consistency - Cronbach's Alpha was used as a measure of the internal consistency of the component scales of the new fear measure.

In addition, because prior results had not resolved the issue and because the improved psychometric properties of the Children's F.E.A.R.S. would lead to more meaningful results, the following hypothesis was posed: children's fears, as measured by this fear survey schedule, change as a function of their age. It is important to note that, because it was reasonable to think that children's fears might change with age, test-retest reliability measures were not included in the initial development of this measure.

Methods (abbreviated)

Item selection. Items were drawn from existing child and adult surveys and from the literature on children's fears; from psychologists, graduate students, and teachers; and from children themselves. This procedure resulted in the selection of 200 items for Round One.

Measure of intensity. A Likert-type scale from one to five was selected to provide adequate variance without asking the children to make unrealistically fine distinctions.

Subjects. Using children in grades 2 - 6, the Round One measure was given to 258 children, and the Round Two measure was given to 353 children.

Procedure. The Children's F.E.A.R.S. was administered class by class in a group setting on Rounds One and Two.

Results

By gradually eliminating complex and low items, fourteen Principal Component Analyses with varimax rotation were performed until simple structure (Thurstone, 1947) was approached using 59 of the original 200 items. These 59 items yielded seven components which accounted for roughly 53% of the total variance.

The Round Two measure included the 59 items from Round One and 25 new items which were added to begin the process of building up the smaller Round One components over time. The present study restricted itself to the 59 items common to both rounds.

As the degree of factorial invariance from Round One to Round Two using these 59 items was unacceptable, an attempt was made to find the core of items which remained invariant across the two administrations. The final results of this process of item eliminations and selection was a 24-item measure which remained factorially invariant over Rounds One and Two.

Table 1 illustrates the 24-item, four component solutions to Rounds One and Two.

The item-to scale correlations for both rounds are provided in Table 2.

Table 3 illustrates the interscale correlations.

The internal consistency coefficients (Alpha) for the 24-item Round One and Round Two measures were as follows: Death and Destruction (Round One = 0.92; Round Two = 0.92); Social Acceptance (Round One = 0.76; Round Two = 0.79); Social Conflict (Round One = 0.81; Round Two = 0.71); and Imagination (Round One = 0.79; Round Two = 0.76).

Oneway analyses of variance were computed to determine whether or not there were significant differences between the children aged 7 - 12 on each of the four component scales. As Table 4 indicates, the Round One oneway ANOVA results for Death and Destruction, Imagination, and Social Acceptance were significant at or beyond the $p < 0.05$ level. In order to ascertain which pairs differed significantly, the Student-Newman-Keuls procedure (using $p < 0.05$) was employed.

In an attempt to replicate the Round One findings, four oneway analyses of variance were computed for the Round Two scales, again using the 7 - 12 age range. As expected, Table 5 indicates that the oneway ANOVA results for Death and Destruction, Imagination and Social Acceptance were significant at or beyond the $p < 0.05$ level.

Note: the reason there are comparisons based on the 7 - 11 age range on Round Two is that there were too few 12-year-olds for the Student-Newman-Keuls results to achieve statistical significance, despite the significant ANOVA results.

Discussion

This study suggests that the Children's F.E.A.R.S. holds promise as an emerging measure of children's fears. The Principal Component Analyses performed on the 24-item measure for Rounds One and Two resulted in four clearly identifiable components. The criteria for simple structure and factorial invariance were met, indicating a satisfactory degree of reliability at this initial stage. The proportion of total variance accounted for (59% and 58%), viewed as a necessary but not sufficient first step in ascertaining construct validity, represented an encouraging improvement over prior measures. The internal consistency of each of the four scales was within acceptable limits.

The results of the age differance analysis indicate that there are reasons to believe children's fears do change with age. Fear of the items which make up the Death and Destruction scale appears to be high in the second grade and to drop off gradually to a low in the sixth grade. These results were replicated in Round Two. Fear of the items which comprised the Social Acceptance scale appears to increase with age. Whether this is a steady rise or a sudden rise, as the Round Two results suggest, remains to be clarified. However, once again, the significant ANOVA results were replicated on Round Two. Although the oneway analyses were significant for the Imagination scale for both rounds, no common trend emerged.

These results pertaining to age differences also provide evidence of concurrent criterion-related validity for the

Children's F.E.A.R.S. The fact that the results were replicated across two administrations lends further support to the stability of the measure.

The subsequent development of the Children's F.E.A.R.S. must include. attempts to increase the overall item-to-scale correlations and the communalities of the items selected and to decrease the interscale correlations as much as possible; new items which better differentiate between the two social scales; additional items for the smaller component scales in order to reduce the disparity between scales with regard to the percent of total variance for which each accounts; and the possibility of developing additional component scales.

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Table 1

24-Item Varimax Rotated Solutions for Rounds One and Two, with 4 Components

		Death and Destruction	Social Acceptance	Social Conflict	Imagination	h^2
Getting shot	(Round One)	.760	.212	.062	.020	.627
	(Round Two)	.795	.082	.141	.086	.666
Being kidnapped		.752	.181	.023	.105	.610
		.748	.155	.055	.123	.602
Going to jail		.704	.345	.145	.106	.647
		.767	.228	.150	-.012	.663
Explosions		.646	.110	.343	.149	.569
		.598	.084	.333	.088	.483
Being in a car accident		.647	.109	.383	-.030	.578
		.680	.295	.113	.152	.585
Being hit by a car or a truck		.762	.058	.257	.069	.655
		.809	.218	.098	.045	.714
Quicksand		.685	.216	.102	.218	.574
		.652	.296	.165	.084	.547
My heart stopping		.783	.033	.119	.096	.638
		.814	.004	.029	-.001	.663
Earthquakes		.743	.091	.176	.051	.594
		.699	.184	.036	.042	.526
Eating poinsonous food		.718	.260	.090	.154	.615
		.788	.023	.092	.020	.630
Body odor		.162	.603	-.073	.024	.396
		.183	.537	.136	.094	.349
Looking foolish		.122	.680	.284	.108	.570
		.062	.760	.064	.237	.642
Not being liked		.141	.696	.154	-.016	.528
		.144	.730	.272	.004	.628
Being fat		.204	.636	.171	.120	.490
		.313	.685	-.033	.012	.568
People who seem crazy		.168	.542	.237	.119	.392
		.100	.487	.398	-.046	.408
Being ignored		.107	.526	.293	.358	.502
		.177	.643	.266	.102	.526

	Death and Destruction	Social Acceptance	Social Conflict	Imagination	h^2
Arguing with my parents	.226	.211	.769	.052	.690
	.058	.144	.747	.140	.602
Being hurt	.202	.183	.666	.212	.563
	.366	.244	.477	.149	.443
Arguing	.200	.165	.709	.293	.656
	.156	.395	.543	.168	.503
Getting punished	.215	.279	.654	.196	.590
	.134	.133	.738	.029	.581
The dark	.084	.082	.235	.772	.665
	.007	.064	.193	.824	.720
Going to bed in the dark	.095	.090	.043	.827	.703
	.114	.011	.047	.814	.678
Sleeping with the door shut	.075	.139	.123	.791	.666
	.060	.218	.017	.820	.724
Nightmares	.337	.062	.318	.552	.523
	.223	.116	.424	.474	.468
Eigenvalues (Round One)	5.66	2.85	2.84	2.69	14.04
(Round Two)	5.89	3.18	2.39	2.45	13.91
% of total variance (Round One)	24%	12%	12%	11%	59%
(Round Two)	25%	13%	10%	10%	58%

Table 2

Item to Scale Correlations

	Round 1	Round 2		Round 1	Round 2
Death and Destruction					
Getting shot	.729	.754	Not being liked	.536	.644
Being kidnapped	.697	.701	Being fat	.458	.453
Going to jail	.723	.756	People who seem crazy	.503	.562
Explosions	.671	.588	Social Conflict		
Being in a car accident	.647	.685	Arguing with my parents	.661	.493
Being hit by a car or a truck	.730	.791	Being hurt	.594	.448
Quicksand	.680	.668	Arguing	.684	.529
My heart stopping	.721	.711	Getting punished	.595	.509
Earthquakes	.700	.657	Imagination		
Eating poisonous food	.720	.709	The dark	.645	.662
Social Acceptance			Going to bed in the dark	.628	.576
Body odor	.376	.446	Sleeping with the door shut	.629	.625
Looking foolish	.584	.607	Nightmares	.528	.439
Being ignored	.503	.562			

Table 3

Interscale Correlations

	Round 1				Round 2			
	Death and Destruction	Imagination	Social Acceptance	Social Conflict	Death and Destruction	Imagination	Social Acceptance	Social Conflict
Death and Destruction	----	.382*	.485*	.526*	----	.274*	.463*	.432
Imagination		----	.380*	.492*		----	.316*	.406
Social Acceptance			----	.559*			----	.556
Social Conflict				----				----

* $p < .001$ * $p < .001$

Table 4

Round One

Analyses of Variance and Student-Newman-Keuls Results for Age Changes

Scale	Age 7	8	9	10	11	12	F ratio
	BC	D	E	F	B	CDEF	
Death and Destruction	3.84	3.64	3.64	3.42	3.10	2.78	(5,248) 5.13***
			B			B	
Imagination	1.76	1.74	2.05	1.93	1.66	1.44	(5,248) 2.52*
Social Acceptance	1.90	2.01	2.18	2.35	2.38	2.27	(5,248) 2.27*
Social Conflict	2.34	2.05	2.28	2.27	1.97	1.87	(5,248) 1.83

B - F = significantly ($p < .05$) different pairs

* $p < .05$

** $p < .01$

*** $p < .001$

Table 5

Analyses of Variance and Student-Newman-Keuls Results for Age Changes (Round Two)

Scale	Age 7	8	9	10	11	12	F ratio
Death and Destruction	4.10	3.58	3.78	3.38	3.27	3.16	(5,347) 4.59***
Imagination	2.18	1.92	1.78	1.62	1.77	1.55	(5,347) 3.06*
Social Acceptance	2.26	2.11	2.28	2.28	2.43	3.01 A	(5,347) 3.24**
Social Conflict	2.29	2.13	2.26	2.11	2.18	2.40	(5,347) <1

Scale	Age 7	8	9	10	11	F ratio
Death and Destruction	4.10 BD	3.58	3.78 C	3.38 D	3.27 BC	(4,333) 5.27***
Imagination	2.18 BCD	1.92	1.78 B	1.62 C	1.77 D	(4,333) 3.34*

A = significantly different ($p < .05$) from all pairs

B - D = significantly different ($p < .05$) pairs

* $p < .05$

** $p < .01$

*** $p < .001$